

National Firefighter Registry – Final Submission

Term: Fall 2020

Team 55

Project #55

Section I: Team Details

Team Members

- Eric Mammoser – QA
- Haolong Yan – Dev
- James Davis – PM
- Rahul Nowlakha – Dev
- Traver Clifford – Dev

TA Mentor

- Elizabeth Shivers – GT

Industry Advisors

- Jill Raudabaugh – CDC
- Breanna Newton – CDC

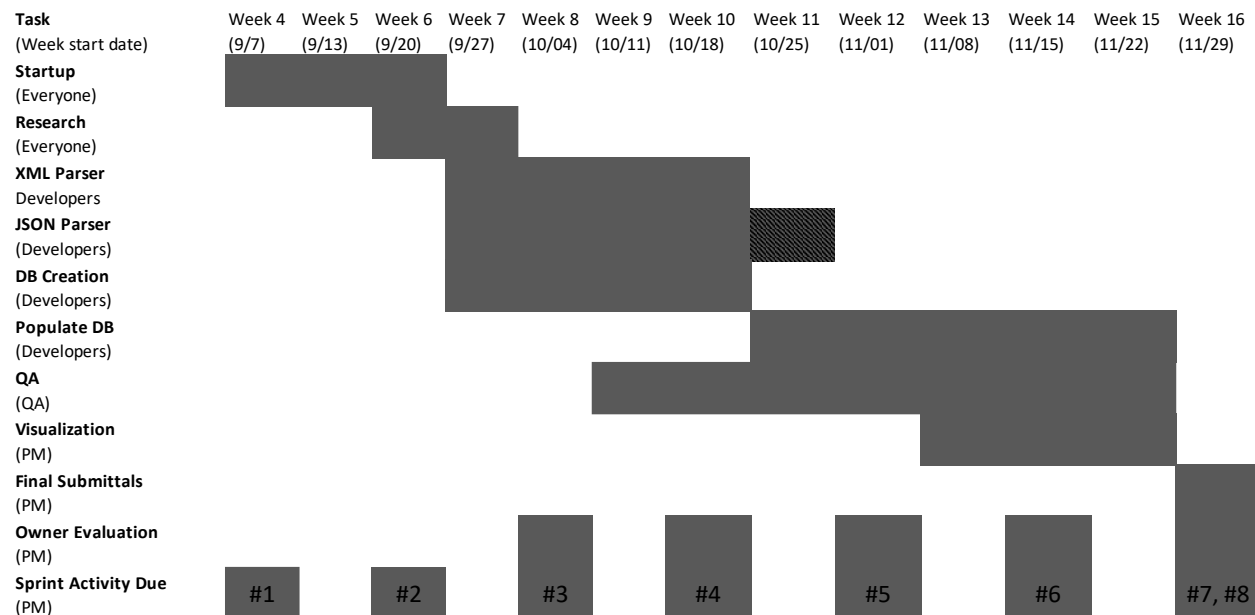
The National Firefighter Registry (NFR) project is a CDC-sponsored project based off of the Firefighter Cancer Registry Act of 2018. The application accepts input file(s) in JSON, XML, or NDJSON format containing a FHIR Patient resource, FHIR Observation resource, or a FHIR Bundle resource (containing either patients or observations). These input files are processed, posted to a public FHIR server for validation, and then extracted and inserted into a MS SQL database which can be accessed via a Tableau frontend. The primary purpose is to track firefighters who have enrolled in the NFR program to conduct research on cancer amongst firefighters.

Team Member Roles & Responsibilities

Roles can be found for each team member under the team members section, with “Developer” abbreviated with “Dev” and “Project Manager” abbreviated with “PM”

- Developer: Responsible for the creation of JSON, NDJSON, and XML parsers for the patient and observation resource and creation and population of SQL DB
- QA: Validate the parsers with various JSON, NDJSON, and XML patient, observation, and bundle resource examples. Additionally, validation that DB is constructed with the resulting data correctly
- Project Manager: Run weekly meetings, determine deliverables along with plan to create them, plan and track project progress, and develop Tableau visualization dashboard

Final Gantt Chart



Section II – Application

Github Repository: All of your code must be in this repository.

Final Git Commit: ad702502adb118a93363d33db49d6b0692932200

Github Link: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry>

Branch: master

Application Details

App Name: National Firefighter Registry

App URL: None (deployed via Docker per CDC requirements)

The application accepts input file(s) in JSON, XML, or NDJSON format containing a FHIR Patient resource, FHIR Observation resource, or a FHIR Bundle resource (containing either patients or observations). These input files are processed, posted to a public FHIR server for validation, and then extracted and inserted into a MS SQL database.

Section III – Project Presentation

Link to Presentation Video: <https://youtu.be/z3CtdRvMdsK>

For slides, see the end of this document (all slides are appended).

Section IV – Project Documentation

Provide direct links to the following

Final Gantt Chart: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/blob/master/Final%20Delivery/Gantt.xlsx>

Application Manual: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/blob/master/Final%20Delivery/Manual.pdf>

Special Instructions: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/blob/master/Final%20Delivery/SpecialInstructions.md>

Research Directory: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/tree/master/Final%20Delivery/Research>

Documentation Directory: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/tree/master/Final%20Delivery/Documentation>

Project Plan: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/blob/master/Final%20Delivery/Documentation/ProjectPlan.md>

Use Case Model: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/blob/master/Final%20Delivery/Documentation/UseCaseModel.md>

Design Document: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/blob/master/Final%20Delivery/Documentation/Design.md>

Test Plan: <https://github.gatech.edu/gt-cs6440-hit-fall2020/National-Firefighter-Registry/blob/master/Final%20Delivery/Documentation/TestPlan.md>



Team 55: National Firefighter Registry

In Collaboration with CDC-
NIOSH

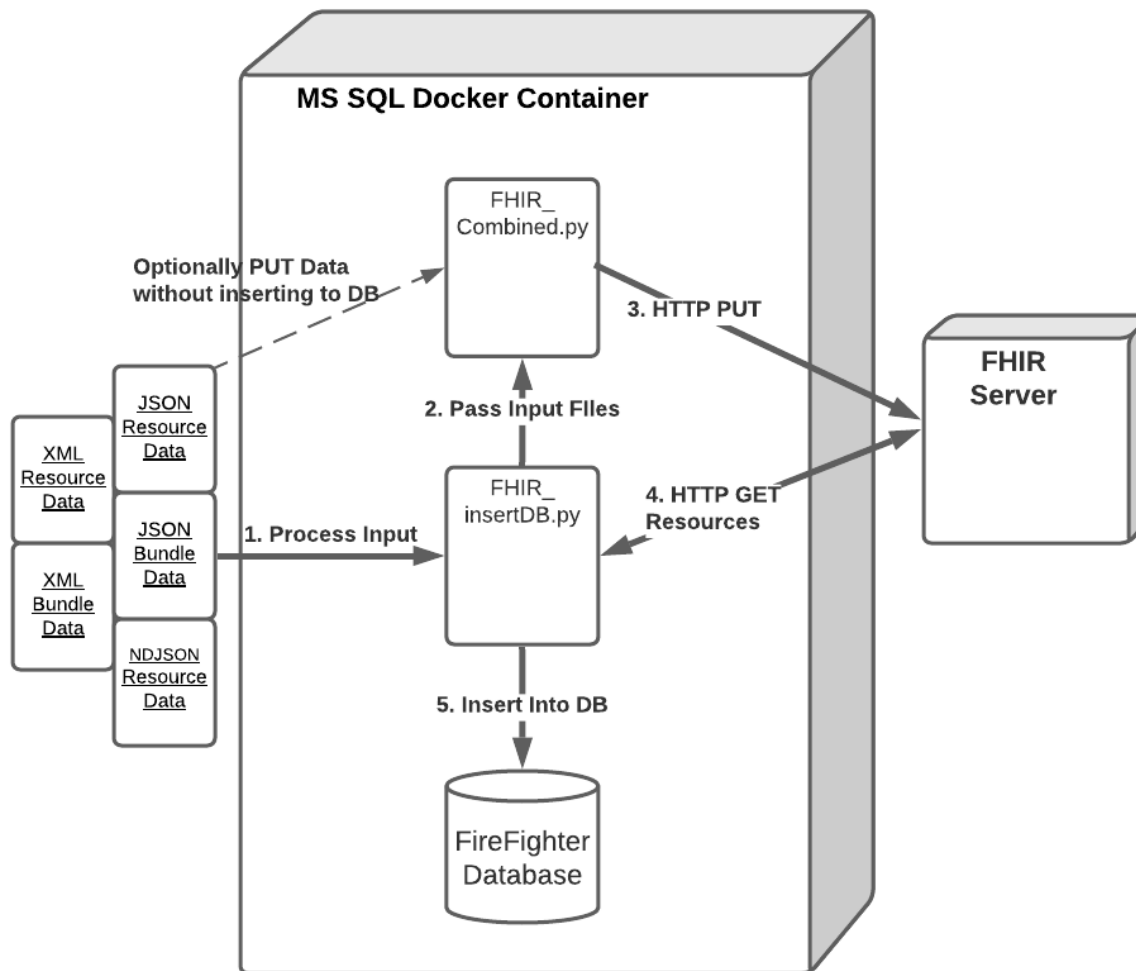
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Agenda

- Project Goals and Requirements
- Team Roles and Contributions
- Research on Design
- Demonstration
- Project Status and Gantt Chart
- Future Plans and Opportunities

Project Goals and Requirements



Team Roles and Contributions

Team 55 Members:

- James Davis
- HaoLong Yan (Jan)
- Rahul Nowlakha
- Joe Kurokawa
- Traver Clifford
- Eric Mammoser

CDC Mentors:

- Jill Raudabaugh
- Breanna Newton

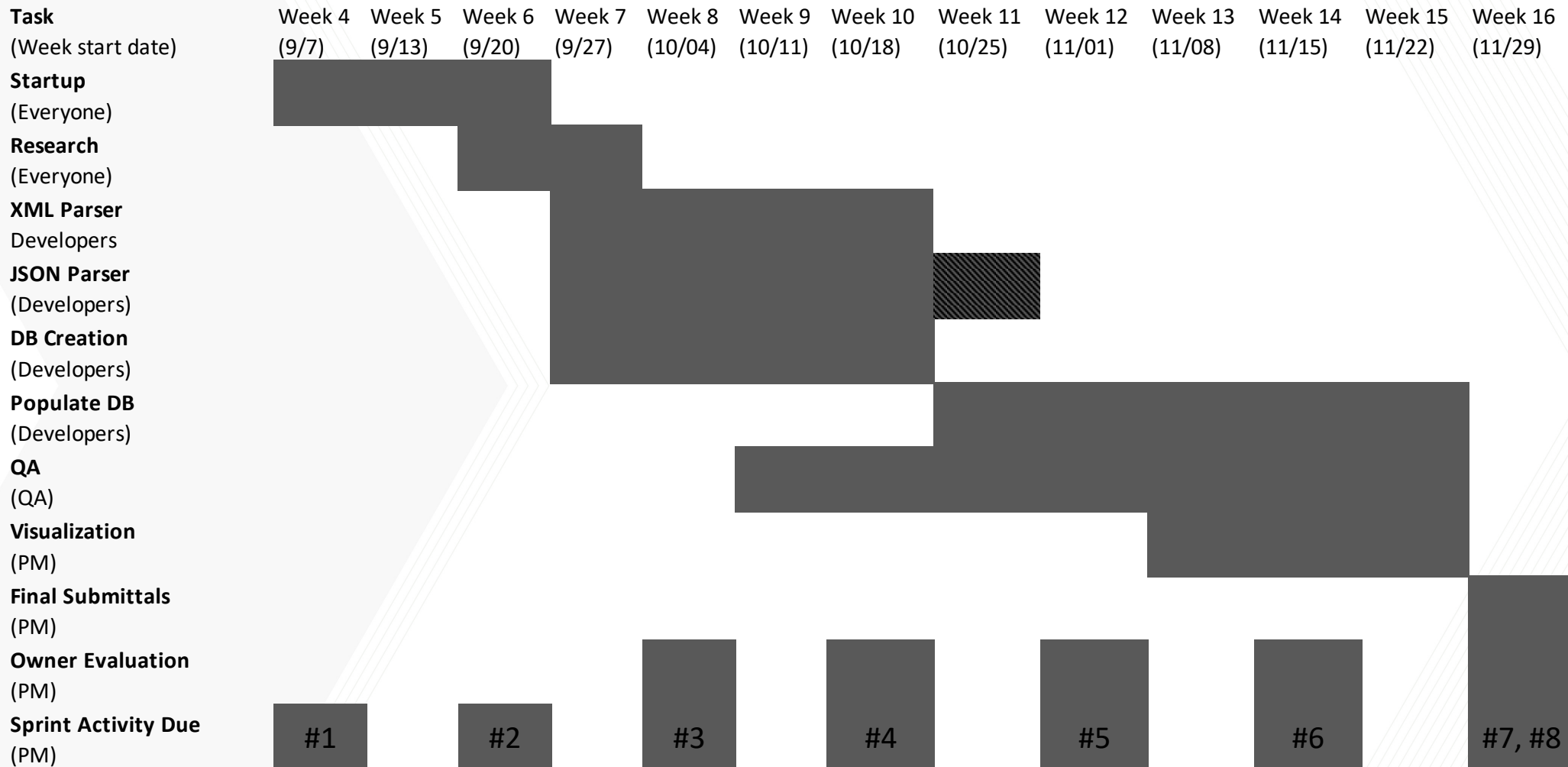
GT Mentor:

- Elizabeth Shivers

Research on Design

- Python libs:
 - Considered `fhirclient.py` to handle interaction with FHIR server
 - Didn't support XML data => settled on handling own HTTP request
- FHIR server to use
 - Public
 - Support R4
- Mapping FHIR resources to DB fields
 - Worked through HL7 FHIR standard and made tentative mapping; aligned with mentor

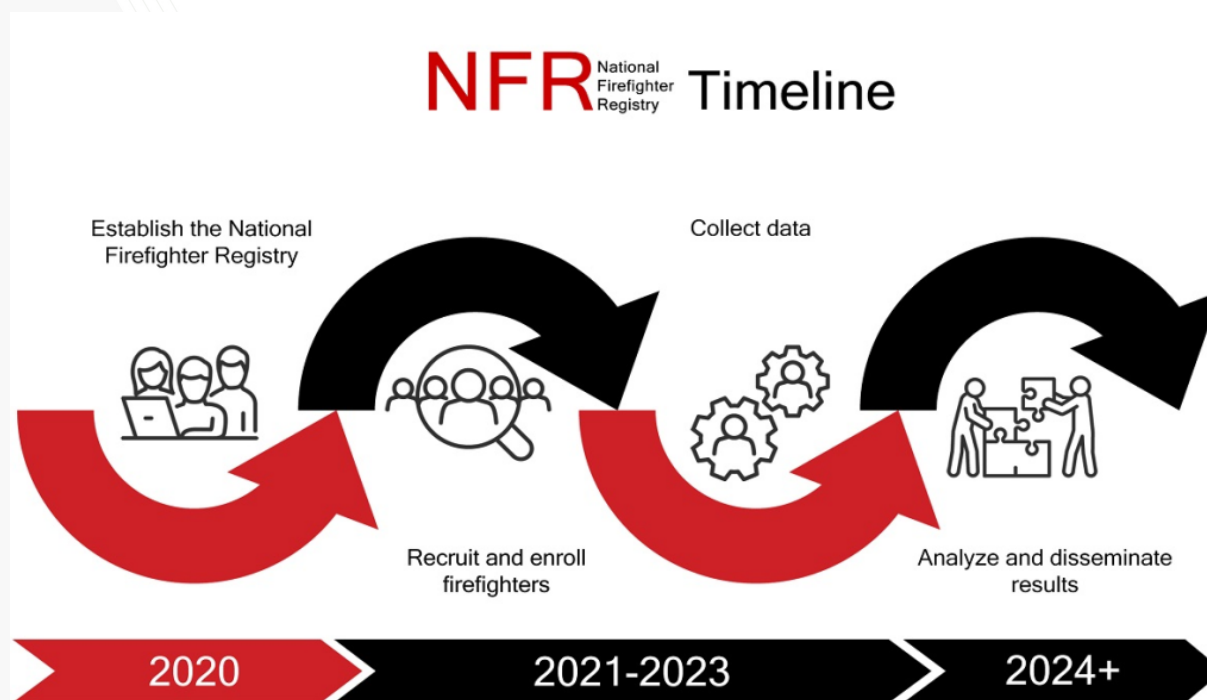
Project Status and Gantt Chart



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Future Plans and Opportunities

- CDC to use our findings to help inform their design



Source: <https://www.cdc.gov/niosh/firefighters/registry.html>